

Claims

- [c1] 1. A method for reducing the pathogen content of a meat product, the method comprising contacting the meat product with at least one lactic acid producing microorganism, wherein the meat product is unprocessed meat, fish, shellfish, or a processed meat material.
- [c2] 2. The method of claim 1, wherein the pathogen content of the meat product after the contacting step is less than the pathogen content of the meat product before the contacting step.
- [c3] 3. The method of claim 1, wherein the pathogen is an *E. coli* pathogen, a *Staphylococcus* pathogen, or a *Salmonella* pathogen.
- [c4] 4. The method of claim 1, wherein the pathogen is *Salmonella typhirium*, *Staphylococcus aureus*, or *E. coli* O157:H7.
- [c5] 5. The method of claim 1, wherein the unprocessed meat is beef meat, pig meat, chicken meat, turkey meat, lamb meat, deer meat, buffalo meat, alligator meat, or snake meat.

- [c6] 6. The method of claim 1, wherein the fish is salmon, catfish, trout, flounder, haddock, cod, mackerel, tuna, swordfish, shark, or squid.
- [c7] 7. The method of claim 1, wherein the shellfish is clam, scallop, mussel, oyster, abalone, lobster, shrimp, crab, or crayfish.
- [c8] 8. The method of claim 1, wherein the processed meat material is ground beef, ground turkey, ground chicken, beef sausage, pork sausage, chicken sausage, hot dogs, or bologna.
- [c9] 9. The method of claim 1, wherein the contacting step comprises contacting the meat product with two or more lactic acid producing microorganisms.
- [c10] 10. The method of claim 1, wherein the contacting step comprises spraying a liquid composition, spraying a dried composition, or painting a liquid composition.
- [c11] 11. The method of claim 1, wherein the contacting step comprises applying the at least one lactic acid producing microorganism to the meat product at a concentration of about 10^4 cfu/gram meat product to about 10^{10} cfu/gram meat product.
- [c12] 12. The method of claim 1, wherein the lactic acid pro-

ducing microorganism comprises a *Bacillus* microorganism, a *Bifidobacterium* microorganism, a *Lactobacillus* microorganism, a *Pediococcus* microorganism, or a *Streptococcus* microorganism.

[c13] 13. The method of claim 1, wherein the lactic acid producing microorganism comprises a *Lactobacillus* microorganism.

[c14] 14. The method of claim 1, wherein the lactic acid producing microorganism comprises a *Lactobacillus acidophilus* microorganism.

[c15] 15. The method of claim 1, wherein the lactic acid producing microorganism comprises a *Lactobacillus acidophilus* microorganism selected from the group consisting of M35, LA45, LA51, L411, NPC 747, NPC 750, D3, and L7.

[c16] 16. A method for reducing the pathogen content of meat or a meat product, the method comprising:
selecting an animal carcass;
contacting the animal carcass with at least one lactic acid producing microorganism; and
processing the animal carcass to produce meat or a meat product.

[c17] 17. The method of claim 16, wherein the pathogen content of the meat or meat product is less than the

pathogen content of the animal carcass.

- [c18] 18. The method of claim 16, wherein the pathogen is an *E. coli* pathogen, a *Staphylococcus* pathogen, or a *Salmonella* pathogen.
- [c19] 19. The method of claim 16, wherein the pathogen is *Salmonella typhirium*, *Staphylococcus aureus*, or *E. coli* O157:H7.
- [c20] 20. The method of claim 16, wherein the animal carcass is a cattle carcass, a pig carcass, a chicken carcass, a turkey carcass, a lamb carcass, a deer carcass, a buffalo carcass, an alligator carcass, or a snake carcass.
- [c21] 21. The method of claim 16, wherein the meat is beef meat, pig meat, chicken meat, turkey meat, lamb meat, deer meat, buffalo meat, alligator meat, or snake meat.
- [c22] 22. The method of claim 16, wherein the meat product is ground beef, ground turkey, ground chicken, beef sausage, pork sausage, chicken sausage, hot dogs, or bologna.
- [c23] 23. The method of claim 16, wherein the contacting step comprises contacting the animal carcass with two or more lactic acid producing microorganisms.
- [c24] 24. The method of claim 16, wherein the contacting step

comprises spraying a liquid composition, spraying a dried composition, or painting a liquid composition.

- [c25] 25. The method of claim 16, wherein the contacting step comprises applying the at least one lactic acid producing microorganism to the animal carcass at a concentration of about 10^4 cfu/gram animal carcass to about 10^{10} cfu/gram animal carcass.
- [c26] 26. The method of claim 16, wherein the lactic acid producing microorganism comprises a *Bacillus* microorganism, a *Bifidobacterium* microorganism, a *Lactobacillus* microorganism, a *Pediococcus* microorganism, or a *Streptococcus* microorganism.
- [c27] 27. The method of claim 16, wherein the lactic acid producing microorganism comprises a *Lactobacillus* microorganism.
- [c28] 28. The method of claim 16, wherein the lactic acid producing microorganism comprises a *Lactobacillus acidophilus* microorganism.
- [c29] 29. The method of claim 16, wherein the lactic acid producing microorganism comprises a *Lactobacillus acidophilus* microorganism selected from the group consisting of M35, LA45, LA51, L411, NPC 747, NPC 750, D3, and L7.

- [c30] 30. A method for reducing the pathogen content of meat or a meat product, the method comprising:
selecting an animal feedstock;
contacting the animal feedstock with at least one lactic acid producing microorganism to produce a treated feedstock;
providing the treated feedstock to an animal;
obtaining the animal carcass from the animal; and
processing the animal carcass to produce meat or a meat product.
- [c31] 31. The method of claim 30, wherein the pathogen content of the meat or meat product is less than the pathogen content of meat or meat product obtained from an animal carcass obtained from an animal that had been provided untreated animal feedstock.
- [c32] 32. The method of claim 30, wherein the pathogen is an *E. coli* pathogen, a *Staphylococcus* pathogen, or a *Salmonella* pathogen.
- [c33] 33. The method of claim 30, wherein the pathogen is *Salmonella typhirium*, *Staphylococcus aureus*, or *E. coli* O157:H7.
- [c34] 34. The method of claim 30, wherein the animal is cattle, a pig, a chicken, a turkey, a lamb, a deer, a buffalo, an

alligator, or a snake.

- [c35] 35. The method of claim 30, wherein the lactic acid producing microorganism comprises a *Bacillus* microorganism, a *Bifidobacterium* microorganism, a *Lactobacillus* microorganism, a *Pediococcus* microorganism, or a *Streptococcus* microorganism.
- [c36] 36. The method of claim 30, wherein the lactic acid producing microorganism comprises a *Lactobacillus* microorganism.
- [c37] 37. The method of claim 30, wherein the lactic acid producing microorganism comprises a *Lactobacillus acidophilus* microorganism.
- [c38] 38. The method of claim 30, wherein the lactic acid producing microorganism comprises a *Lactobacillus acidophilus* microorganism selected from the group consisting of M35, LA45, LA51, L411, NPC 747, NPC 750, D3, and L7.
- [c39] 39. The method of claim 30, wherein the contacting step comprises contacting the animal feedstock with two or more lactic acid producing microorganisms.
- [c40] 40. The method of claim 30, wherein the lactic acid producing microorganism is present in the treated feedstock at a concentration of about 10^3 cfu/gram feed to about

10^{10} cfu/gram feed.

- [c41] 41. A method for reducing the pathogen content of meat or a meat product, the method comprising:
- selecting an animal;
 - administering at least one lactic acid producing microorganism to the animal to obtain a treated animal;
 - obtaining the animal carcass from the treated animal;
 - and
 - processing the animal carcass to produce meat or a meat product.